

Risk of Incontinence with Transurethral Resection of the Prostate after Radiation Therapy for Prostate Cancer

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Background: It has been reported that transurethral resection of the prostate (TURP) after definitive radiation therapy for prostate cancer is associated with a significant risk of incontinence. The presumed reason for incontinence is external sphincter damage from TURP or pre-existing damage from either extension of prostate cancer or radiation therapy.

Methods: We reviewed seven recent cases of TURP for bladder outlet obstruction in patients who had undergone radiation therapy for clinical stage T₃₋₄M₀N₀ adenocarcinoma of the prostate. All seven men progressed to either chronic retention or debilitating obstructive symptoms with weak peak flows from 3.4 to 5.1 cc/s (mean 4 cc/s). Each of them subsequently underwent a limited TURP.

Results: Voiding symptoms were reduced in all patients and peak flows were improved to 6.3 to 20 cc/s (mean 14.8 cc/s) with mean follow-up 35 m. No patient developed stress urinary incontinence postoperatively.

Conclusion: These results suggest that TURP can be performed successfully after radiation therapy with minimal risk of stress incontinence. J. Surg. Oncol. 64:127–129. © 1997 Wiley-Liss, Inc.

KEY WORDS: radiotherapy; stress incontinence; adenocarcinoma of prostate

INTRODUCTION

Bladder outlet obstruction after curative radiotherapy for prostate cancer is an uncommon but challenging predicament. Despite the lack of definitive studies addressing the issue, the perception is that incontinence is a frequent sequelae of transurethral resection of the prostate (TURP) in these patients. The actual incidence and quality of incontinence experienced by patients after TURP are not known. This prompted us to review our experience with patients who have undergone TURP after radiotherapy for prostate cancer. Surprisingly, we did not find incontinence to be a frequent complication among our patients. We report our findings herein and present one representative case that is illustrative of the presentation and management of the patients in our study.

CASE HISTORY

A 63-year-old Hispanic male was noted to have an elevated prostatic acid phosphatase (PAP) of 31.6 units on routine follow-up for an episode of urinary retention. A digital rectal examination revealed a soft, smooth, enlarged prostate. A prostatic needle biopsy was performed, which revealed Gleason score 2/3 adenocarcinoma of the right lobe. Left lobe biopsies were negative. Bone scan was negative, but pelvic computerized tomography revealed asymmetry of the seminal vesicles and bladder base, suggesting local extension. After treatment

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Accepted 31 August 1996

TABLE I. Treatment Dates and Results for Postradiation Therapy Transurethral Prostatectomy

Patient #	Age at XRT ^a (y)	XRT ¹ date mo/y	TURP ^b date mo/y	Volume resected (g)	Pathology result	Follow-up date mo/y	Continence status
1	65	6/89	10/89	6	benign	5/94	continent
2	76	11/85	9/89	33	benign	11/93	continent
3	64	10/83	2/92	9	CaP ^c	12/93	continent
4	63	3/87	5/90	23	CaP ^c	8/93	continent
5	79	1/91	1/93	8	benign	4/93	urge
6	73	8/87	9/92	2	CaP ^c	7/94	continent
7	66	4/88	8/89	81	benign	11/93	continent

^aXRT: radiotherapy.^bTURP: transurethral resection of the prostate.^cCaP: carcinoma of the prostate.

options were discussed with the patient, he chose to undergo bilateral orchiectomy and radiotherapy. He subsequently received a total of 6,600 cGy external beam radiation treatment to the pelvis, which he tolerated well.

He remained asymptomatic for 3 years. Subsequently, he presented with a weak stream, 3–5 episodes of nocturia per night, and urinary retention. Hybritech serum prostate specific antigen (PSA) and prostatic acid phosphatase (PAP) were within normal limits at this time. Uroflowmetry revealed a mean flow of 5.1 cc/s. On cystoscopy, a large, occlusive prostate was observed with a heavily trabeculated bladder. After treatment options were discussed, the patient chose to have a channel TURP. He subsequently underwent a limited transurethral resection of 23 g of tissue. Pathology revealed Gleason 4/4 CaP in ~35% of the specimen. The patient's symptoms improved considerably and peak flow rate was 20.2 cc/s. On follow-up 3 years after surgery, the patient reported complete emptying, a forceful stream, and no incontinence of any type.

MATERIALS AND METHODS

Between 1987 and 1991, seven patients were identified at our institution with stage T₃₋₄M₀N₀ adenocarcinoma of the prostate who were treated with TURP for obstructive symptoms after radiotherapy (Table 1). A limited TURP was performed on each patient with minimal resection at the apex of the gland. Each patient had undergone an extensive workup to rule out metastases on initial presentation with cancer. The workup included a history, physical examination, serum PAP, Hybritech serum PSA levels, and bone scan. Three patients (#2, #3, and #4) also had computerized tomography scans of the pelvis, and one patient (#7) also underwent a pelvic lymph node dissection. None of these studies or procedures revealed evidence of metastatic disease in any of the patients.

Each of the seven patients received a total of 6,600 cGy of radiotherapy. For six of the seven patients, the entire dose was administered via external beam radiotherapy. The remaining patient (#7) had iridium im-

plants placed in the pelvis at the time of pelvic lymph node dissection. A total dose of 2,200 cGy was administered via this route, with an additional 4,400 cGy being subsequently administered through external beam radiotherapy.

Follow-up was conducted by chart review. After radiotherapy each patient presented with obstructive symptoms that ranged from urgency, hesitancy, and decreased force of stream to complete retention. Each was initially treated with an in-dwelling urethral catheter or clean intermittent catheterization (CIC). All were given the treatment options of CIC, bladder augmentation, and CIC or TURP. Despite being explained the possible risks of incontinence and stricture formation from TURP, all seven chose this form of treatment to alleviate the obstruction.

RESULTS

Four patients had symptoms of obstruction at the time of diagnosis of cancer. By the time of TURP, all seven men had progressed to chronic retention and/or debilitating obstructive symptoms with a mean peak flow of 4 cc/s (range 3.4–5.1 cc/s, normal 15 cc/s). TURP was conducted in all men with a mean resection of 22 g (range 2–81 g) of tissue (Table 1). Mean follow-up was 2.9 y (range 3 m–4.5 y). Three of the patients underwent orchiectomy, and one was treated with leuprolide.

All seven patients had reduced obstructive symptoms after TURP, and mean peak flow at the time of follow-up had improved to 14.8 cc/s (range 6.3–20 cc/s). None of the seven patients had developed stress urinary incontinence (SUI) by the time of follow-up. One of the patients did complain of nighttime urge incontinence shortly after surgery, which was successfully remedied by administration of imipramine hydrochloride.

DISCUSSION

As many as a quarter of the patients diagnosed with prostate cancer present with locally extensive disease, which is commonly treated with radiotherapy [1–3]. Obstruction is one of the most common sequelae of local recurrence after radiotherapy, reported as high as 59% in

one series [4]. Often, this complication is treated by performing a limited TURP, being careful while resecting near the apex of the gland not to damage the external sphincter. Because of the potential for external sphincter damage during TURP, damage from radiotherapy or local extension of prostate cancer into the sphincter muscle, the prevailing perception is that incontinence is a common complication in these patients. This perception exists despite the lack of studies directly addressing this issue in detail.

In their series of 209 patients who underwent radiotherapy for stage C prostate cancer, Gibbons and associates [5] reported that only one of 17 patients who had postradiotherapy TURP developed incontinence. The type of incontinence was not specified. Holzman et al. [4] reviewed morbidity and recurrence of tumor in 121 patients who received radiotherapy. Forty-four patients underwent TURP for subsequent obstruction. Twelve of these 44 patients (27%) became "totally incontinent" after TURP, suggesting that the rate of this complication is substantial.

CONCLUSION

We have identified and herein reported on seven patients with stage T₃₋₄M₀N₀ prostate cancer who were

treated with radiotherapy and subsequently developed obstruction. All seven were successfully treated with TURP and were free of significant obstructive symptoms on follow-up. None of the patients in our series experienced symptoms of SUI. As with other studies, the sample size is too small to perform definitive statistical analysis. However, the fact that all seven of the patients were free of this complication suggests that the actual rate may not be as high as is commonly perceived.

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